

Agricultural Development and the Growth of Towns

A Case Study from South India and some Hypotheses

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INTRODUCTION

Interest in small and medium sized towns is recent, but is a growing one as evidenced by research projects sponsored by international agencies and the growing number of seminars and workshops. Governments are also showing interests. In the Developing Countries, the interest in small towns, has a wider base. It comes as a sequel to the much discredited 'growth pole approach' to regional development. The new arguments put forward in favour of small and intermediate towns dilutes the growth pole theory to some extent and almost disregards the principle of hierarchy of settlements and thus tries to be more 'down to earth' and 'pragmatic'. An assumption here is that by orienting investments nearer to the locationally deprived poorer people in the stagnant rural areas, there are better chances that the larger benefits of development would go to them. It is also argued that the growth opportunities to these towns may cause slowing down of migration to large cities and thus reduce the rate of increase in overcrowding. A growing small town should also be able to radiate development impulses through their services, employment and acculturation functions and therefore, it is argued, they should be able to play a considerable role in the integrated rural development programme. This view counters the arguments for the advantages of large cities and scale economies mostly on the basis of social and equity criteria (Weitz, 1981; Rondinelli and Ruddle, 1976; Johnson, 1970; Task Force, 1977).

Nonetheless, there are others who think differently. There are some who argue implicitly or explicitly that urban development is opposed to rural development. There are arguments depicting 'urban bias' as a chief villain in rural underdevelopment (*e.g.* Lipton, 1980). There are others who deny any positive role of urban centres and advocate a complete delinking of urban and rural development. The bottom up strategists and the agropolitan strategists of rural development support this view (Friedmann and Weaver, 1979; Stohr and Taylor, 1980; Friedmann, 1981; Friedmann and Douglass, 1978). There is yet another group suggesting that the roles of small towns can more effectively be played by a group (cluster) of villages (Rao, 1980; Ramachandran, 1980).

The debate over the advantages and disadvantages of the large cities is over. The verdict is against them.¹ The issue still requiring clarification is: do the small

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¹ This is true even though many economists still hold the view that large cities help to accelerate economic growth and that they manifest a propensity for higher productivity and consequently provide higher average incomes for the inhabitants (see Mera, 1975, 1978 and 1980; Harris, 1978).

and intermediate towns play any major role themselves in the development of a predominantly rural society like that of India? Most writings on rural development which touch on the spatial aspects are implicit in one assumption that the urban centres have a role: positive or negative. Towns 'lead' or 'mislead' development. Both imply the assumption that urban and rural societies are two different classes and one has the power to lead or exploit the other. Is this always true?

There are also a host of other questions relating to the roles of towns. Why is it that most small towns stagnate? Why do certain kinds of settlement patterns emerge in an area? What role do towns play in development process? Why are they not playing the roles which they are to play in an ideal situation?

This paper is a modest attempt to throw some light on some of these issues. We believe that most of these questions could be answered and the role of towns could be explained better if we try to understand why and how certain types of settlement structures emerge. This paper therefore reports the results of a pilot study² which attempted to explain very modestly the changes in the settlement system of a region where dramatic social and economic changes have occurred during the last 3–4 decades. As a pilot study the results are only indicative, but we hope that they do indicate that the pattern of economic, political and social development have a bearing on the development of the settlement structure. We would be able to put across certain hypotheses linking the functions of towns and the development process.

The data have come primarily from secondary sources. Some of the inferences were drawn from previous studies and field observations and therefore are not supported by extensive statistical data. Even the available statistics are not fully updated due to various difficulties. The results we present are, to a large extent, only indicative; not definitive.

SWEET CAME THE WATER

Mandya district, our study area is one of the smallest districts in the Karnataka state with a geographical area of 4,96,048 hectares. The 1981 census counted the population as 1,414,393 which was 22.5% higher than that of 1971 population (1,154,374). It is located along the highway and the railway connecting two major cities of the state namely Bangalore (2,913,000 population in 1981) and Mysore (476,000 population in 1981) (see also Fig. 1). Administratively the district is divided into 7 *taluks*. There are 1,339 villages and 11 towns at present. Mandya district was part of Mysore district until 1939 when a new district was created.

The river Cauvery, one of the largest important rivers in the south India flows along the border of the district. Yet most parts of the district were dry until 1931, and no wet crop could be grown. The old residents of the district remember the times when there used to be mass migration in summer to other places. The waters of the river Cauvery were used in a small way through several anicuts

² This research project, namely 'Role of Small and Intermediate Centres in Socio-economic Development Process in Predominantly Rural Societies', is a collaborative project undertaken by the International Institute for Environment and Development, London with the help of four other institutions, namely the Institute of Development Studies, University of Mysore, in India, University of Khartoum in Sudan, Faculty of Environmental Design, University of Lagos in Nigeria and Centro de Estudios Urbanos Regionales, Buenos Aires in Argentina. The main projects are currently being undertaken and pilot studies were completed during 1978–1979. These pilot studies were based mainly on secondary data. The summaries of the pilot project reports were published (Bhooshan, 1980).

The Indian Case Study on which this paper is based was conducted at the Institute of Development Studies, University of Mysore and was jointly directed by R.P. Misra, currently Deputy Director, UN Centre for Regional Development, Nagoya and the present author. Mention should be made of Mrs Prabha Krishna Murthy, Saikumar Krishnan and H.R. Tiwari, who assisted in gathering and analysing of data.

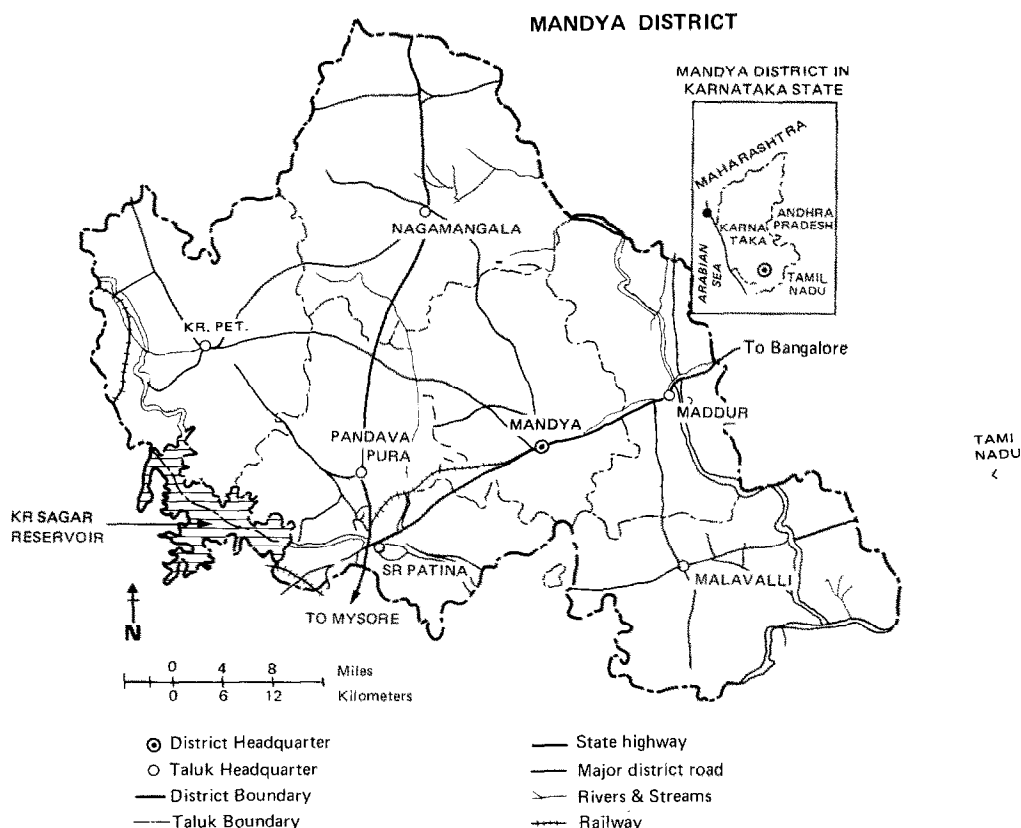


Fig. 1.

constructed across Cauvery as well as Hemavathy, its main tributary. Canals from these anicuts and other sources of irrigation such as tanks, a vast number of which existed all over the area, were however not always reliable. Water was usually available only for the first crop and the perennial crops suffered. Crops like mulberry and sugar-cane could not be extensively cultivated. These two crops were considered by the then rulers of the state as the most important ones for the growth of the state's economy. A proposal was made to impound waters of Cauvery on a large scale by building a dam across it. The proposal was the brain child of Sir M. Visesaraya (Sir M.V) the then Diwan of the princely state of Mysore.³

With the completion of the dam, the Krishnaraja Sagar (KRS) reservoir and the formation of the Irwin Canal (later renamed Visweswarayya Canal) in the year 1931, the landscape of Mandya underwent fast changes. Water, oddly enough, was not very welcomed by the people for fear of Malaria, and neither was the encouragement to cultivate sugar-cane. But the expected bitterness turned out to be sweet, especially for the large landholders. Capital flowed into Mandya along with water. When the district was brought under assured irrigation, the Government of Mysore realised that the prosperity of the region would depend in a large measure on the profitable cultivation of a commercial crop like sugar-cane and that this would be possible only if the manufacture of sugar was initiated along modern lines on a large scale.

³ The princely state of Mysore under the British indirect rule (from 1881–1947) was much smaller than the present Karnataka state. It extended to a little over a third of the present state. The state was then ruled by kings who were loyal to the British, with the help of a representative assembly and a Diwan. The Diwan was the chief functionary of the state equal to a Prime Minister. Mysore State during the middle of this century was considered very progressive among the princely states in India.

Industrialisation was the catchword in the State⁴, and Mandya was to be part of an experiment. There were small scale units of *jaggary*⁵ makers (cane crushers) in existence. There were also small scale sugar mills called 'Khandasary units' making inferior quality sugar. But these technologies⁶ and this type of industrialisation was not what the rulers had in mind. Their model was Europe. Moreover, these units were incapable of luring all the potential cultivators to grow sugar-cane. The technology was inferior, capital was inadequate and turnover was too small to make any dramatic impact.

The government acted fast. It was determined to provide capital as well as leadership. A large scale factory was opened in the public sector in the small town of Mandya along Bangalore–Mysore railway line in 1934. A licensing system for factories and zoning system (demarcating areas) for procurement of sugar-cane was introduced. There was opposition, but the government went ahead. The government was fully involved in Mandya. In the words of Mirza Ismail, one of the dynamic Diwans who succeeded Sir M. Visesaraya, it was not proper to leave the growing and production of sugar-cane entirely to the 'free play of competition' as there might be a 'conflict of interests' between the sugar-cane cultivators and the sugar producers (Ismail, 1936, p. 247). This experiment was part of a dream. Commercial crops and industries were being pushed into the state by the government. Thus Chitradurga was to be a cotton district, Chikkamagalur, the coffee district and Mandya, the sugar district. With irrigation from K.R. Sagar, electricity from Shimsha falls (in Mysore district) and capital from the state, sugar-cane, sugar factories and allied industries were to develop the region. This scheme was realised to a large extent.

The present Mandya district was part of Mysore district until 1939. Therefore, information to compare changes is difficult to obtain. Moreover, the changes have not occurred uniformly over space. As we will note later the developments occurred intensely along the Bangalore–Mysore transport axis covering Mandya, Maddur, Pandavapura and parts of Malavalli and Srirangapatna *taluks* only. Historical data on *taluk* basis could not be obtained and that made statistical analysis of the changes still more difficult. However, Table 1 gives an idea of the changes that the agricultural economy of the district underwent. Sugar and paddy came to dominate the scene while traditional *ragi* and *jower* were relegated to drier areas. Though irrigation was confined to a part of Mandya, the changes in the cropping pattern are evident especially in favour of sugar-cane. The productivity of the district surpassed most other parts of the state as the table indicates.

Along with the increases in the acreage of irrigation and sugar-cane, the number of small scale producers of *jaggary* (local brown sugar) also increased. This shows that at present the amount of sugar-cane produced in the area is much more than the three sugar mills can consume. Everyone is now trying to grow sugar-cane. All the sugar factories work almost all the year round, though they do not still work to full capacity for other reasons. The scramble for water has reached such a stage that the Mandya farmers now unauthorisedly utilise as much as 1.75 times the authorised amount of water for irrigation.

A limit has now been reached, in respect of irrigation from KRS to Mandya and possibility of further expansion in agriculture, unless new avenues are opened. Water from KRS reservoir may not be able to irrigate much more than is irrigated now, not so much because of the capacity of the reservoir but because of topographic features. The agricultural surplus which is produced in

⁴ Visesaraya told his fellow citizens 'Industrialise or Perish', and advocated for an industrial development through forced marches. See Visesaraya (1917, 1940) or Hettne (1977).

⁵ A kind of traditional brown sugar. The units are very small and employ 3–5 people on an average.

⁶ The sugar recovery rate is low in both these cases compared to modern methods employed in sugar factories.

Table 1. Progress of agricultural development in Mandya district

Items	1933–1934 ¹ (Mysore and Mandya Dts)	1947–1948	1963–1964	1970–1971	1978–1979 ³
1. Net sown area as percentage of total area	—	47.6%	50.8%	55.0%	54.55%
2. Percentage of Net sown area irrigated	—	24.2%	29.2%	34.6%	35.8%
3. Area under sugar-cane in hectares	3,544	6,962	12,678	17,132	23,707
4. Total cropped area under rice in hectares ²	2,60,618	41,422	63,243	62,214	66,850
5. Area under <i>ragi</i> in hectares (dry crop)	1,94,404	72,371	81,724	85,306	101,696
6. Number of tractors in use	—	44	—	91	—
7. Number of bullock carts in use	—	17,720	35,121	33,962	—
8. Sugar-cane crushers	—	329	670	895	—
9. Yield/hectare in kg					
Rice:					
Mandya district	—	—	—	2,710	3,268
The State average	—	—	—	1,893	2,210
Jowar:					
Mandya district	—	—	—	899	1,936
The State average	—	—	—	658	849
<i>Ragi</i> :					
Mandya district	—	—	—	1,029	1,812
The State average	—	—	—	1,056	1,418
Sugar-cane: (in tonnes)					
Mandya district	—	—	—	104	106
The State average	—	—	—	88	77

Source: Bureau of Economics and Statistics, various publications.

Notes: ¹ Since Mandya district was formed only in 1939 statistics prior to that date are not available. Mandya was part of Mysore district. It occupies a geographical area which is 29.32 percent of the undivided Mysore district. ² Area cultivated more than once is counted more than once. ³ Yields relate to the year 1977–1978.

the area now looks for new avenues of investment, which appear to be rather limited.

THE WET CROP ECONOMY AND EMERGING STRUCTURE

The agricultural development in Mandya is characterised by three prominent features which shaped the emergence of the present regional economic structure and the social structure. They are:

1. Formation of a core along the paddy–sugar-cane belt;
2. Deepening the disparities and economic stratification of population;
3. Penetration of the capitalist interest in agriculture.

The core formation

The sugar-cane and paddy dominate the scene. Mandya is the second largest sugar-cane area in Karnataka State now. Though food grain crops (cereals and pulses) account for more than three-quarters of the total cropped area (about one quarter of the total cropped area of the district is under paddy while *ragi* accounts for 36%) sugar-cane is the most important commercial crop. It occupies 9% of the net sown area in the district and 20% of the irrigated area. However, it contributed to about 30% of the district income in 1978 (on a rough estimate). Much of it comes from Mandya and Maddur *taluks* (see Fig. 2 and Table 2). In

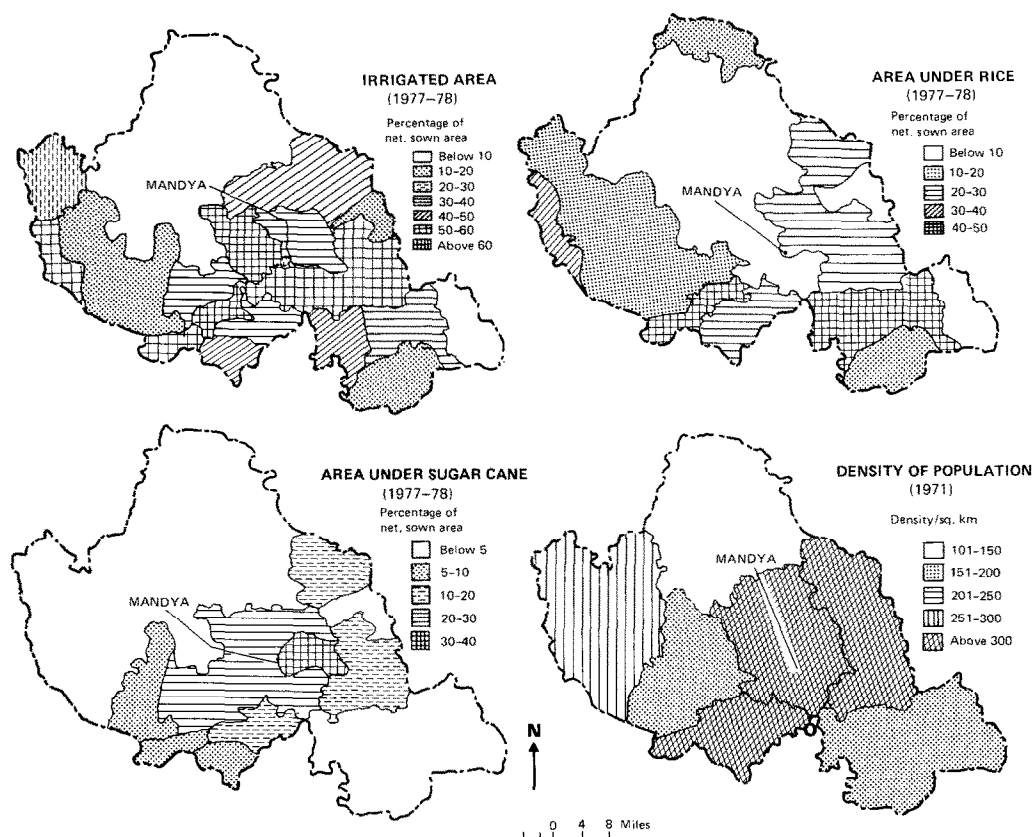


Fig. 2.

Table 2. Area under sugar-cane in 1978 in various taluks of Mandya district

Taluks	Area in hectares	% of area
K.R.Pet	1,875	7.68
Maddur	5,219	21.38
Malavalli	439	1.80
Mandya	11,816	48.40
Nagamangala	297	1.22
Pandavapura	2,001	8.20
Srirangapatna	2,764	11.32
	24,411	100.00

Source: District Statistical Office, Mandya.

Mandya *taluk* about 20–25% of the net area sown were under this crop in the years between 1973 and 1978 accounting for 30–35% of the total irrigated area there.

While the water from KRS changed the agricultural possibilities, the sugar factory opened up new opportunities. The sugar factory at Mandya and the factory opened in co-operative sector in 1956 at Pandavapura constituted the 'core' around which the sugar economy evolved.

Epstein (1971, p. 15) observes that:

"At first villagers were reluctant to experiment with sugar-cane growing, an entirely new venture to them, . . . The difference in the crop period and the considerably higher investment and working

capital required for sugar-cane deterred Wangala⁷ farmers from starting sugar-cane cultivation. The Mandya mill introduced several measures to overcome the farmers' resistance to cane growing: it offered to buy the full cane crop grown on an area under contract at a price per ton fixed in advance; it allowed farmers credit facilities for the purchase of fertilizers and gave cutting advances, . . . and it employed trained extension workers as field men who encouraged farmers to grow cane, arranged for the supply of seedlings and advised on cultivation problems."

However, the perishable nature of the cane and the easy accessibility to the guarantee provided by the factories for agricultural credits limited the spread of sugar-cane cultivation mainly to three *taluks*. In the irrigated areas beyond, the wet crop of rice, especially the high yielding varieties spread fast along with new agricultural technologies, better seeds and methods of cultivations. The traditional dry crop of *jowar* and *ragi* continued to be favoured in the dry areas and marginally irrigated areas. Consequently, an elongated core has developed along the highway consisting of the irrigated paddy-sugar-cane belt. Politically, socially and economically these parts have come to dominate the district. These are also now the most dense areas having large sized settlements (see Fig. 2). It also appears that there had been a migration from dry areas of Krishnarajapet and Nagamangala *taluks* and part of Malavalli *taluks* to the wet paddy sugar-cane tract.

Deepening disparity

While this development has increased the general prosperity of the area, it has not helped in reducing the interpersonal disparities. The growth strategy that was followed there did not have any component to safeguard against the concentration of wealth. The agricultural development was accompanied by limited industrial and commercial activities so much so that more than 80% of the labour force were left in the agricultural sector even by 1971. Their proportion had remained unchanged in 1981 census as well. This situation has been further worsened by the limited availability of land and an unequal distribution of the same.

Table 3. Sugar factories in Mandya district

Name of the factory	Mysore Sugar Company Limited	Pandavapura Sahakara Sakkare Karkhane*	Sri Chamundeswari Sugar Limited
1. Location	Mandya Town (Mandya Taluk)	Pandavapura Town (Pandavapura Taluk)	K.M. Doddi (Maddur Taluk)
2. Year of establishment	1934	1956	1974
3. Crushing capacity per day (tonnes)	4,500	1,500	1,250
4. Number of workers employed	1,886	894	405
5. Cane crushed a year (average from 1975-1976 to 79-80) in tonnes	495,134	288,261	234,305
6. Number of villages and growers in cane procurement zone (1978)			
(a) Villages	350	149	323
(b) Growers	14,186	6,533	21,685

Source: 1, 2, 3 and 5, Mysore Sugar Company, Mandya. 4, Sewurn, 1982.

* Pandavapura Co-operative Sugar Factory.

⁷ A fictitious name given to a study village in Mandya.

The *per capita* land available for cultivation to rural population worked out to around 0.36 hectares in 1976. This is a low figure indeed, especially in the dry areas of the district. However, the land distribution is far from egalitarian. Only about 60% of the work force in 1971 were reported as cultivators indicating possession of some land to cultivate and 21.75% were living principally by selling their labour to agriculture. The proportions have changed little even in 1981. The 1970 agricultural census showed that most of the cultivators are either small or marginal.

Small and marginal peasants who work on holdings, less than 2 hectares constituting about 78% of all the farmers, operated together about 43% of all cropped land in 1970 while about 6% of farmers (large + medium sized holdings) operated 26% of land (Table 4). The income from 2 hectares of sugar-cane or rice at the current prices can provide a family in irrigated Mandya to a fair level of living, but in dry areas this would not help them to make both ends meet. The agricultural labourers live in perpetual poverty and uncertainty even now. Statistics tell that in the 14 years from 1960 to 1975, the agricultural wages went up only by 333% for men and 278% for women. Though rural figures are not available a reflection at the 320% of increase in the consumer price index at Mandya would indicate the marginality of the increase of the purchasing power of the agricultural labour (BES, 1978).

The agricultural labourers together with the small and marginal farmers, and the rural artisans make up the officially identified economically weaker sections and they numbered 263,784 in 1971.⁸ This figure represented 70% of the total main workers of 1971 census.⁹

It appears that it is only the medium to large farmers especially in the paddy-sugar-cane belt (they come to less than 25% of farmers, and less than 15% of rural population), who really benefited from the irrigation based agricultural development of Mandya district. The real economic power and therefore the political power is in the hands of these large-to-medium sized sugar-cane growers who account for about 10% of all farmers in the district. They have now the power to bring pressures on government to make spatial decisions go their way.¹⁰ In all probability, the income disparity has increased substantially, though the total regional product has grown.

Capitalist penetration

The third characteristic of the agricultural development in Mandya is the slow but steadily increasing importance of capital, though all agricultural productions cannot be classified as under capitalist mode of production.

Epstein (1962, p. 36) noted that:

“The first sugar-cane planted on Wangala was by a shrewd absentee landlord, who lived in the nearby town. He was one of a number of urban speculators who had bought newly irrigated land, seeking a stake in the new rural prosperity. When irrigation reached the villages some of the farmers were prepared to sell part of their land simply because land prices had doubled overnight.”

Indications are that this phenomenon has continued though there are no hard data to prove the same. Moreover, hired labour has been replacing family labour and credit is becoming a crucial factor in agriculture. Reinton (1976) noted in 1976 that villagers producing sugar-cane in Mandya meet 65% of the production costs

⁸ As per the estimate of the Planning Department, Government of Karnataka (DRPU, 1977).

⁹ 1981 census classifies workers into main and marginal workers.

¹⁰ They have successfully stalled, until recently, the construction of the left bank canal of the KRS reservoir which would have benefited some more dry areas, on the plea that there will not be enough water to spare. Though the left bank people could win the battle in 1979, construction is progressing only at a slow pace.

Table 4. Operational holdings by size class in Mandya, 1970

Taluk/types of holdings	Marginal below 1.00 hectare		Small 1.0-2.0 hectare		Semi medium 2-4 hectares		Medium 4-10 hectares		Large 10 and above		Total	
	No.	Area	No.	Area	No.	Area	No.	Area	No.	Area	No.	Area
K.R. Pet	12,695 (43.90)	6,219 (13.08)	8,121 (28.08)	11,425 (24.02)	5,819 (20.12)	15,594 (32.79)	2,062 (7.13)	11,253 (23.00)	218 (0.75)	3,073 (6.46)	28,915 (100.0)	47,564 (100.0)
Maddur	19,737 (56.54)	8,648 (17.81)	7,728 (22.14)	10,747 (22.14)	5,176 (14.83)	13,970 (28.88)	2,022 (5.79)	11,419 (23.52)	246 (0.70)	3,765 (7.76)	34,909 (100.0)	48,549 (100.0)
Malavalli	30,153 (65.59)	12,855 (26.50)	9,560 (20.80)	13,334 (27.49)	4,677 (10.17)	12,625 (26.03)	1,459 (3.17)	7,970 (16.43)	122 (0.26)	1,720 (3.55)	45,971 (100.0)	48,504 (100.0)
Mandya	16,232 (52.77)	7,441 (17.02)	7,539 (24.51)	10,693 (24.47)	5,079 (16.51)	13,799 (31.57)	1,762 (5.73)	9,676 (22.14)	145 (0.47)	2,098 (4.80)	30,757 (100.0)	43,707 (100.0)
Nagamangala	19,866 (53.28)	7,979 (15.24)	8,948 (24.00)	12,910 (24.66)	6,025 (16.16)	16,411 (31.35)	2,277 (6.11)	12,625 (24.11)	169 (0.45)	2,428 (4.64)	37,286 (100.0)	52,353 (100.0)
Pandavapura	12,250 (54.01)	5,445 (16.98)	5,325 (24.48)	7,576 (23.62)	3,598 (15.86)	9,572 (29.84)	1,379 (6.08)	7,698 (24.0)	129 (0.57)	1,784 (5.56)	22,681 (100.0)	32,075 (100.0)
Srirangapatna	7,966 (51.77)	4,048 (18.51)	4,084 (26.54)	5,766 (26.36)	2,446 (15.90)	6,594 (30.15)	826 (5.39)	4,565 (20.87)	65 (0.42)	901 (4.12)	15,387 (100.0)	21,874 (100.0)
District total	118,899 (55.07)	52,635 (17.87)	51,305 (23.76)	70,451 (24.59)	32,820 (15.20)	88,565 (30.06)	11,787 (5.46)	65,206 (22.13)	1,094 (0.51)	15,769 (5.35)	215,905 (100.0)	294,626 (100.0)

Note: Figures in parentheses are percentages to the total area under all holdings in the taluk.

Source: Bureau of Economics and Statistics, District Statistical Handbook, Mandya, Government of Karnataka, 1974.

in cash. Agriculture has become more commercial so that crop specialisations have occurred in irrigated areas as we have noted earlier. An effect of this capital penetration has been the breaking down of traditional production relations and the larger farmers increasing interests in squeezing out as much value out of the labour as possible. Part of the increases in disparity stem from this fact.

EMERGING SETTLEMENT STRUCTURE

The pattern of growth

This capitalist development of agriculture aided by the states and enterprising industries has made the district prosperous and substantially changed the settlement structure. There is considerable evidence to show that there has been immigration into the paddy-sugar-cane tract. Most of this has been absorbed in the rural agricultural sector itself. There has been very little change in the rural-urban ratio or the occupational structures (see Tables 5 and 6). The villages in this belt have grown bigger compared to the dry areas (see Fig. 3). The urban content of Mandya district is very low even now, viz., 15.54% compared to 28.91% in Karnataka state. There were 8 towns in the district during 1931 and now there are 11. Of these 7 are *taluk* or district headquarters and the other four are very small settlements, one of which is slowly declining in population. Except Mandya and Hongahalli, none of these towns qualify for urban status but for their administrative status.¹¹

The growth of Mandya town has been phenomenal. The sleepy town of 1931 grew into a city of more than 100,000 by 1981. It might have been the rail head and the location on the Bangalore-Mysore highway which prompted the

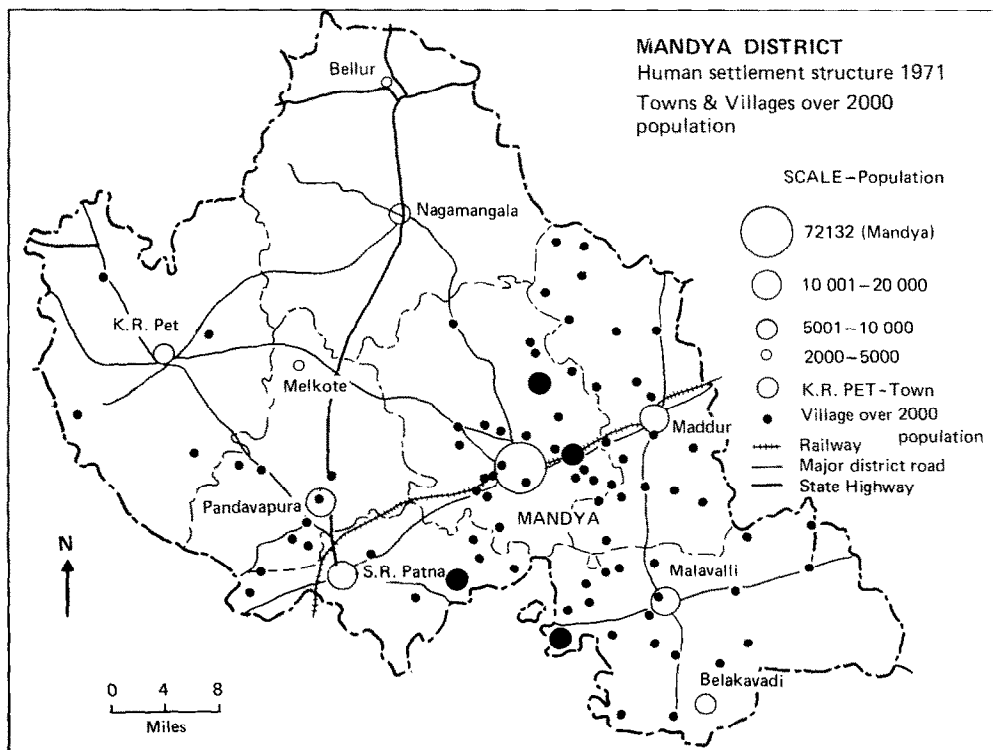


Fig. 3.

¹¹ Census of India classifies a place as urban if it satisfies all the three following conditions: 1. a population of not less than 5000; 2. more than 75% of male workers engaged in non-agricultural occupation; 3. a density of not less than 400 persons per sq. km (1000 persons per sq. mile).

Table 6. Occupation structure in Mandya district

Taluk 1	Year 2	Agricultural occupations 3	Manufacture other than household industry 4	Trade and Commerce 5	Transportation and communication 6	Others 7
K.R. Pet	1961	91.1	0.8	0.9	0.2	7.0
	1971	89.8	0.9	1.8	0.5	7.0
	1981	89.6	—	—	—	10.4
Maddur	1961	87.1	1.4	1.4	0.2	9.9
	1971	84.9	1.9	2.9	0.5	9.8
	1981	82.6	—	—	—	17.4
Malavalli	1961	82.0	1.3	2.4	0.2	14.1
	1971	83.5	1.3	3.6	0.6	11.0
	1981	80.1	—	—	—	19.8
Mandya	1961	75.9	5.4	2.6	0.8	15.3
	1971	71.7	5.8	6.1	3.0	13.4
	1981	71.5	—	—	—	29.5
Nagamangala	1961	89.4	0.7	1.2	0.2	23.8
	1971	86.5	1.3	2.7	0.5	9.0
	1981	88.0	—	—	—	12.0
Pandavapura	1961	85.7	1.9	1.7	0.3	10.4
	1971	83.5	3.1	2.9	0.7	9.8
	1981	83.0	—	—	—	17.0
Srirangapatna	1961	73.2	4.2	2.4	0.4	19.8
	1971	72.7	5.0	4.1	1.6	16.6
	1981	74.7	—	—	—	25.3
District total	1961	83.9	2.2	1.8	0.3	11.8
	1971	81.2	2.9	3.7	1.2	11.0
	1981	80.5	—	—	—	19.5

Note: (a) Figures are percentage to total workers. (b) Only selected categories are tabulated here. (c) The 1981 figures are percentages of main workers only.

Source: *Census of India*.

decision to establish the sugar mill in Mandya town in 1934. Since then, Mandya became the centre of change in the district. It later attracted ancillary industries such as a distillery, an acetate and chemical factory and also an implements factory. When a new district was carved out of Mysore district Mandya became the district headquarters attracting many administrative offices. Many trade and service functions like the regulated market, shops of specialised goods and service, machine repair and small industries also found Mandya attractive. Mandya now is a pivotal trade centre for wholesale business in food grains and consumer goods in the district. Immigration made it grow by leaps though it seems to have passed a peak (see Table 6) of its growth.

The other *taluk* headquarters have been stagnating or have been growing at a very slow pace. Most of them grew by natural increase. Some of them, like K.R. Pet, grew even less than the district average of population growth indicating out migration. During 1961–1971 decade, 3 towns namely; Malavalli, Nagamangala and Pandavapura, showed indications of faster growth, but 1971–1981 figures showed a slowing down again. All towns excluding Mandya and Maddur (another important traffic node along the Bangalore–Mysore transportation line) have more or less the same growth rate. The very small towns seem to have no growth prospects as before. There are also a few other villages which are larger than some of the towns.¹²

The functional and central place structure

Administrative services are the core around which the urban functions of these towns are built (see Table 8). The agricultural population of all towns, except

¹² There were four such villages in 1971. 1981 census figures are not yet available.

Mandya is as high as 30–40%. The commercial, administrative and social services account for most of the remaining 50–60%.

Administration as a legacy of the colonial past, is capable of attracting a substantial number of the day-time population in all *taluk* headquarters and thus is a supporter of certain types of commercial activities. The commercial functions of these towns are only of marginal significance for agricultural development as most of the commercial and service activities are consumption-oriented rather than production-oriented (see Table 11). Most towns would collapse if the administrative functions were taken away. Industrial activities like saw mills or rice mills account for less than 10% of the labour force of these towns.

Dominance of Mandya Town is obvious by size, functional variety of growth. Analysis based on the size hierarchy, functional index¹³ and connectivity show that there is no town which could come anywhere in the vicinity of Mandya's scores (see Tables 7 and 8).

To understand the linkages and functioning of the urban structure in Mandya two types of field observations^{13a} were made: (a) a study of visits from 15 randomly selected villages to town (Fig. 4 and Tables 10 and 11); (b) a study of inputs to commercial and service units and catchment area of social services in two towns (Malavalli and Maddur). The analysis has indicated the following:

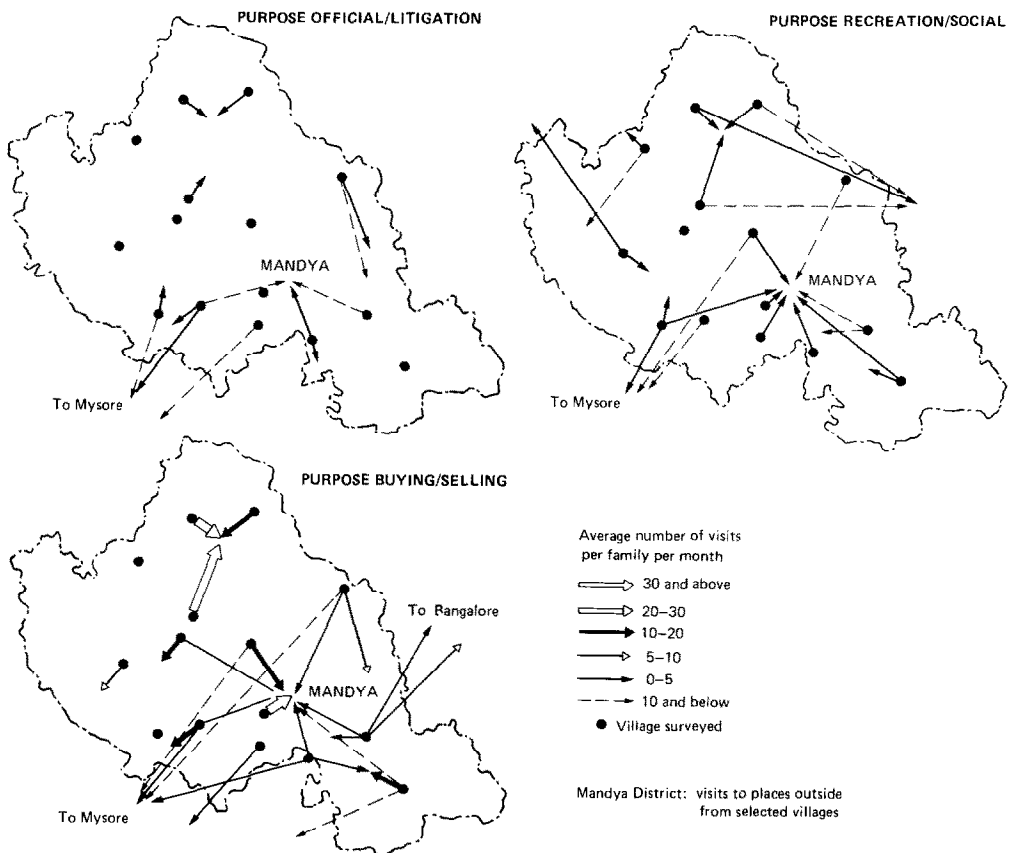


Fig. 4.

¹³ These indices are taken from Rao *et al.* (1978) based on an analysis of 230 towns of Karnataka. They used 17 variables of functional importance of centres and scores on first principal component, explaining 73% variations was used as index of functional score.

^{13a} These field studies were conducted during February–March 1979.

Table 7. Increase/decrease in population of towns

Towns	1901	1911	1921	1931	1941	1951	1961	1971	1981	Percentage changes 1931-1981
1. Belakavadi	—	—	—	4,001 (-31.2)	4,250 (+5.2)	4,602 (+8.3)	4,875 (+5.9)	5,537 (+13.6)	6,396 (+15.5)	+59.8
2. Bellur	—	—	—	—	—	3,129 (+30.9)	3,602 (+15.1)	4,323 (+20.0)	5,483 (+26.8)	—
3. K.R. Pet	2,131	2,337 (+9.7)	3,226 (+38.0)	2,750 (-14.8)	3,127 (+13.7)	6,972 (+123.0)	8,331 (+19.5)	9,631 (+15.6)	12,799 (+32.8)	+365.4
4. Maddur	2,597	2,279 (-12.2)	2,816 (+23.6)	3,093 (+9.8)	3,838 (+24.1)	5,331 (+38.9)	8,120 (+52.3)	12,089 (+31.6)	17,401 (+43.9)	+462.6
5. Malavalli	7,270	5,461 (-24.9)	7,400 (+35.5)	8,348 (+12.8)	9,055 (+8.5)	12,063 (+33.2)	13,561 (+12.4)	19,007 (+40.2)	25,113 (+32.1)	+300.8
6. Mandya	4,496	4,255 (-5.4)	4,887 (14.9)	5,958 (+21.9)	11,374 (+90.9)	21,158 (+86.0)	33,347 (+57.6)	72,132 (+116.3)	100,264 (+39.0)	+1,588.8
7. Melkote	3,129	2,535 (-19.0)	6,307 (+148.8)	2,753 (-56.7)	2,787 (+2.0)	2,846 (+2.1)	2,781 (-2.3)	2,739 (-1.8)	2,685 (-2.0)	109.0
8. Nagamangala	3,516	3,633 (+3.3)	3,474 (-4.4)	3,780 (+8.8)	4,258 (+12.6)	5,492 (+29.0)	6,524 (+18.8)	8,583 (+31.2)	11,086 (+29.2)	+193.3
9. Pandavapura	1,983	1,922 (-3.1)	2,400 (+25.2)	3,016 (+25.3)	4,271 (+41.6)	5,750 (+34.6)	7,508 (+30.6)	10,650 (+48.9)	14,158 (+32.9)	+369.4
10. Srirangapatna	8,584	7,457 (-13.1)	7,217 (-3.2)	6,300 (-12.7)	7,678 (+21.9)	10,133 (+35.9)	11,423 (+9.5)	14,100 (+23.4)	18,158 (+28.7)	+188.0
11. Hongahalli	—	—	—	—	—	—	—	—	1,933	—

Note: Figures in brackets show decadal growth in percentage of the previous decade.

Source: Computed from Census of India, various publications.

Table 8. *Urban centres in Mandya: population, occupation and functional score*

Population rank in 1971	Population 1971	Growth rate 1961-1971	I + II	% of workers in occupation category III + IV	Vb	VII	IX	Functional score 1971	Functional rank 1971
1. Mandya	72,132	+116.3	17.03	1.04	10.40	21.30	20.99	1.3634	1
2. Matavalli	19,007	+40.2	43.88	3.86	6.43	18.12	15.93	0.1372	3
3. Srirangapatna	14,100	+23.4	36.77	1.92	7.51	14.55	22.05	0.1037	7
4. Maddur	12,089	+31.6	37.75	1.70	8.96	23.99	15.26	0.1161	5
5. Pandavapura	10,650	+48.9	42.05	0.42	6.18	15.27	20.18	0.1125	6
6. K.R. Pet	9,631	+15.6	55.49	1.59	15.56	12.43	14.89	0.1495	2
7. Nagamangala	8,583	+41.9	31.96	0.70	6.74	22.91	24.73	0.1364	1
8. Belakavadi	5,537	+13.6	73.46	0.66	0.90	6.65	11.11	0.0478	10
9. Bellur	4,323	+20.0	45.66	0.52	9.60	23.44	14.45	0.0547	9
10. Melkote	2,730	-1.8	34.60	0.14	3.80	12.80	25.32	0.0727	8

I = Cultivators, II = Agricultural labourers, III = Livestock, forestry, hunting *etc.* IV = Mining *etc.* Vb = Other than household industry, VII = Trade and Commerce.

Source: V.L.S. Prakash Rao *et al.* (1978) and Director of Census Operation, 1982.

Note: Hongahalli is not included here since it became a town only in 1981.

1. Marketing, recreation, social purposes and office work or litigation are the major propellers of movements of rural people to the towns. Marketing (selling of produce and buying of agricultural input and other consumer goods) and other trips are however, a function of income and distance. Poorer farmers and agricultural labourers seem to have little to do with towns (see Table 9).
2. Attraction of Mysore and Bangalore seems to be so high that many rich persons bypass small towns and even Mandya for availing urban nodal facilities even though they are available at nearby towns. Variety and choice seem to attract people to Mysore and Bangalore. Similarly there are many middle-class trips which bypass local small towns and end up in Mandya even for daily necessities.
3. Even much of the inputs to retail trade and service establishments in small towns (*taluk* headquarters) originate from Bangalore and Mysore and not from Mandya (see Table 10). Mandya thus seems to have little two way links with surrounding towns. Even transport links between Mandya and other towns are not as strong as they are to Mysore and Bangalore (see Fig. 4).

These analyses indicated that the central place structure that is emerging in Mandya district consists of a dynamic core town and a few nodal points. It appears to be part of an urban system expanding along the Bangalore–Mysore transportation axis. Three levels of central places are notable in the area. The top level consists of Mandya and we may call it a regional town. The second

Table 9. Income and visits to urban centres

Village	Correlation between income and urban trips (r)	Taluk
Mikkere	0.6	Malavalli
Chotanaahalli	0.5	Malavalli
Kyathanahalli	0.5	Pandavapura
Mudangodore	0.8	Srirangapatna
Chinya	0.5	Nagamangala

Note: Data from observed villages were not amenable for analysis.

Table 10. Place of origin of inputs to commercial and service establishments

Category	Number of surveyed establishments purchasing inputs from				Total number of surveyed establishments
	Local	Mysore	Bangalore	Mandya	
<i>Malavalli Town</i>					
I. Commercial establishments					
(a) Small and medium	12	3	7	—	22
(b) Large	3	5	9	5	22
II. Service units	9	6	7	3	25
<i>Maddur Town</i>					
I. Commercial establishments					
(a) Small and medium	5	—	3	1	9
(b) Large	3	—	4	6	13
II. Service	4	—	4	3	11

Source: Primary Survey.

Table 11. Trade establishments and service industries in the towns (number of units in 1978)

Trade categories	1	2	3	4	5	6	7	8	9	10	11
		Belakavadi	Bellur	K.R. Pet	Maddur	Mallavalli	Mandya	Melkote	Nagamangala	Pandavapura	Srirangapatha
1. Daily domestic supplies (grocery, vegetables, fruits, meat, bakery, fuel and charcoal)	36	37	32	79	93	409	11	55	73	58	
2. Household articles, consumer durables and stationery (crocery, glassware, office supplies, radio electricals, sewing machines etc.)	0	2	13	9	16	71	1	14	8	3	
3. Novelties, ornaments, jewellery etc.	0	1	2	7	4	16	1	8	0	1	
4. Automobile, tractor, spares, engineering goods, chemicals and dyes etc.	0	0	0	0	3	27	0	0	0	0	
5. Construction materials and timber	0	0	1	6	2	37	0	1	2	1	
6. Petrol bunks	0	0	0	0	2	6	0	0	1	0	
7. Bunk shops, selling pan, beedi, cigarettes, cola, sweets, refreshments, liquor	17	47	75	119	63	179	19	62	48	62	
8. Boarding and lodging	0	0	1	1	2	6	0	2	0	0	
9. Fertilisers and seeds	3	4	4	5	6	27	0	4	3	2	
10. Others (textiles, footwear, beddings, medicine, travel goods)	4	13	16	47	42	205	8	20	22	8	
11. Laundry, barbers and tailors	15	14	34	39	34	131	17	44	55	27	
12. Hullers, flour mills, grinding machines	0	2	12	11	13	32	3	22	2	7	
13. Watch, radio and cycle repairs, photo studio and photo frame	7	13	21	32	34	68	3	22	19	24	
14. Automobile, tractor repair and services	—	1	0	2	1	12	0	4	0	0	
15. Saw mills	—	0	2	4	1	19	2	4	4	4	

Source: Municipal records.

levels are the *taluk* headquarters¹⁴ and we may call them local towns.¹⁵ Some central villages seem to be existing in the third level, but their functional characteristics were not studied. The four small census towns will also fall in this category.

Strictly speaking, it may not be appropriate to call Mandya a regional town as its economic links do not really extend to the whole of the region (district). Despite its dominant size over other towns, Mandya is a regional town in a restricted sense only; in administration and in wholesale business of some items. Mandya's economic region is still small as indicated by the studies on linkages (Fig. 4). Most of Mandya city's population depend directly on the sugar factories and ancillary industries as well as district administration. The proportion of the population depending on the service functions does not seem to be very much greater than that in other local towns.

The city's past growth stemmed from two factors: its location on the Bangalore–Mysore axis leading to transportation nodality; and its administrative importance as district headquarters and its lead in attracting industrial and wholesale trade activities of some items. These two factors are no more important enough to push its growth further. It seems that a plateau has been reached and its further growth is very much predicated by the fact that it is part of the Bangalore–Mysore axis. Mysore and Bangalore¹⁶ are so close to Mandya that it cannot compete with them in attracting more functions, industries or establishments. Mandya now is a medium-sized intermediate city without a large region of its own.

The functional structure and the development roles Mandya and the other local towns have played/are playing are summarised in Table 11 and Appendix 1. Table 11 gives an idea of the type of service functions Mandya, the medium sized (intermediate) city and other local towns (*taluk* headquarters) are performing. It is clear that urban development so far has been a manifestation of the expansion of states administration and consumption-oriented commercial activity.

AGRICULTURAL GROWTH AND URBAN DEVELOPMENT — SOME HYPOTHESES

A set of questions emerge from our discussion so far. Why did not the rapid agricultural growth induce a higher pace of urbanisation? (The urban content is still only 15.4%.) Why has the agricultural surplus helped only one town to grow? Why did the other local towns stagnate? What did towns contribute in Mandya districts' development? This section tries to answer these questions in the form of certain hypotheses. We would not be able to support all our field observations with adequate data at the moment. To advance certain hypotheses it is necessary to simplify the complexities and therefore the following discussion offers only part of an explanation for the questions raised above.

Our current knowledge makes us presume that growth of central places and towns are results of increasing demands for central functions on the one hand and the capability of certain urban activities in creating job and other opportunities and attracting people on the other. Administration, commercial enterprises and manufacturing industries are examples of such job-creating activities. Historical and political factors could localise some of these functions in certain places. The metropolitan centres are largely creations of such develop-

¹⁴ The rank size analysis of 1971 census data showed that three villages also qualify to be in second order, but except for population figures, there are no other data to support this.

¹⁵ We use this terminology to avoid the definitional problems of growth centre and central place terminology.

¹⁶ Mysore is 45 km and Bangalore is 95 km from Mandya.

ment. One could find many smaller towns also as examples of this. Nonetheless, urban developments at the micro-level are largely conditioned and sustained by the regional economic and social development. It depends largely on the demand for central place services required for as well as created by the economic and social development process. We will examine this proposition further.

Administration has been one major factor responsible for localising population in a few urban places in Mandya district. Offices relating to the district headquarters could support more people than the *taluk* headquarters. And thus the administration as an exogenous factor has a major role in defining Mandya's urban structure. But there is more than that. Apart from administration two sets of functions could be noted as important urban functions as shown in Appendix 1 and they are as follows.

Agricultural services and agro-industries which includes a network of services (including that of input and output markets) for rural (mainly agricultural) production. We may call these as Production Oriented Tertiary (POT) activities. Industries processing agricultural produces also could be included in this category.

Functions of certain types intended to satisfy the consumption demands and needs of rural population in terms of goods and services. These may be referred as Consumption Oriented Tertiary activities (COT).¹⁷

Urban development and services to agricultural economy

The functions which service and promote rural production, including those relating to the supply of inputs, extension services, credit facilities and processing facilities are essentially the 'growth centre' components of an urban centre or central place. The experience of Mandya suggests that barring sugar-cane, other crops require and so generate very little of such functions. Principal crops such as rice and *ragi* lend themselves to limited agro-processing and industrial activities before they are marketed and require limited inputs other than credit and irrigation. Because of the skewed distribution of land holdings, the number of farmers with marketable surpluses are also small and the sale by many semi-medium and small farmers really amounts to distress selling to itinerant merchants. Thus central marketing facilities are also utilised only by a small number of farmers (see Fig. 2). In any case these marketing activities do not seem to promote any great deal of non-farm employment and urban employment so as to promote greater urban growth.

The sugar-cane sector has, however, been facilitated greatly by the central places. It is mainly so because the crop requires support of such functions. Conversely, the crop has also facilitated growth of the town. There is no denying the fact that urban centres like Mandya and Pandavapura with their sugar mill credit institutions, extension services *etc.* have helped agricultural growth of the irrigated tract by encouraging expansion of sugar-cane cultivation. Irrigation and introduction of technology alone could not have achieved the results so fast. The centres have played a key role. Government acted through the centres. The investments in irrigation and agricultural technology were complimented with investments in agro-industries at the centres. The government also acted to control proliferation of 'uneconomic' small scale competitors to the large scale units at the chosen centres. Thus, when urban centres' activities were carefully chosen to match the regional potential, it resulted in rapid economic growth in the region as well as in the centre. Mandya city's phenomenal growth until 1970 is partly accounted for by the industrial activities as much as by district

¹⁷ These terms are adopted from Sundaram (1974).

administration. Together these two activities employed between 30 and 35% (see Table 8, Vb and Part of Table 8, IX) of the city's work force in 1971. Though a sugar factory was located at Pandavapura later in 1956, the already established pre-eminence of Mandya which is very close by, precluded it from attracting the ancillary industries. Further, the core of sugar-cane production has also been around Mandya city. Formation of the agricultural core coincided with the development of the 'primate' city of the district.

COT activities and urban growth

Consumption Oriented Tertiary development, especially retail trade, is a major factor supporting urban growth in the district. This is also a most visible urban function. Around 20–25% of the work force in all the towns in Mandya were engaged in these activities. (Trade and Commerce (VII) and part of the other services (IX) in Table 8. The definition of IX is vague including many non-administrative services.) The distribution pattern of the rural purchasing power has influenced the development of COT activities and thus the urban growth pattern as well to a large extent. The reason for this is explained below.

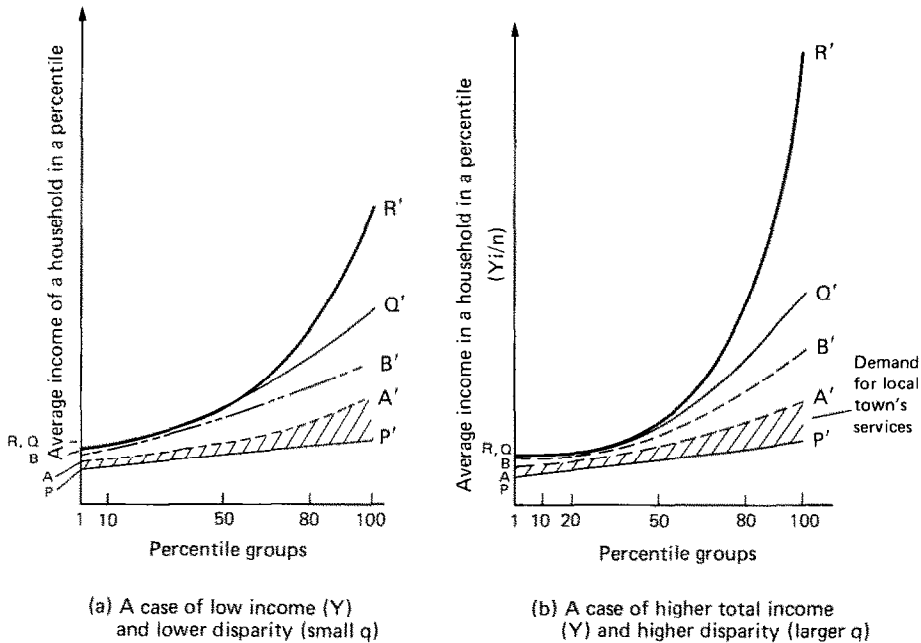
Irrigation and sugar-cane cultivation have given rise to class society which is different (though not totally) from the one which existed earlier. The feudal society based on caste hierarchy is giving way to a class hierarchy.¹⁸ The agricultural development without much of a structural change in the economy has resulted in an income distribution pattern more skewed in favour of the rich than it was before. The rural income distribution is more skewed than the land distribution (Table 4) pattern because the landless agricultural workers and artisans are much poorer than even the marginal farmers. The income distribution in Mandya could be depicted as nearly as in graph RR' in Fig. 5b.¹⁹ The accuracy of the graph is not important for the arguments that follow.

For the sake of brevity let us divide the utilisation of incomes of rural households into three broad categories: (a) the part of income that is spent on satisfying certain needs of the households by goods and services produced locally within the rural settlements; (b) part of the incomes spent on goods and services produced elsewhere, usually in urban centres or in goods marketed through central place networks (let us call it urban goods and services); and (c) part of the income that goes as savings, debt repayment or investment. The lines PP' and QQ' divide the area defined by income graph RR' into these parts in Fig. 5.

The proportion of income that goes towards the consumption of locally (rurally) produced goods, mainly consisting of staple food items, is denoted by the area between 'X' axis and PP'. This proportion decreases with higher incomes though the absolute expenses may increase. The proportion of incomes that is spent towards the consumption of goods and services provided by the urban centres is marked by the area between PP' and QQ'. This would include many items of daily necessity as well. The goods may be manufactured in the urban centres where people buy them or they may be manufactured elsewhere and the

¹⁸ It is true that certain castes have emerged as powerful political and economic groups, which give the class structure a feudal tinge and blurs the class differentiation. The dominant Vokkaliga caste in Mandya is not fully a capitalist class; many landless labourers come from this caste. The people belonging to this caste are numerically the largest and therefore, all of them cannot be rich. But by and large the rich farmers and businessmen in Mandya belong to this caste. The Vokkaligas now dominate the economic top strata of Mandyan society. There are historical reasons why this community dominated Mandya's politics and economy. The unity within the caste, which is part of the tradition, prevents the rift between the classes, though the economic disparity between them increases indefinitely. The economic Harijans almost all of whom are landless labourers, never get the support of the labourers of other castes. Therefore the labour and small farmers are still divided into castes. They remain without much of an upward lift in spite of the prosperity of the region. The development policies and policies did not attempt to change the situation of the small farmers and labourers.

¹⁹ This diagram is hypothetical. It does not relate to any specific data.



Note: All lines are hypothetical and stylised RR' in (b) approximates land distribution in Mandya

Fig. 5.

urban centre in question may only be providing a service of distribution. In any case, the money spent in an urban area should enable growth of its trade and other service activities if not manufacturing activities. It is fair to assume that higher income groups spend higher amounts towards urban based services and goods, but it may not be correct to assume that they spend higher proportions of their incomes towards them.

No doubt the consumption patterns have undergone changes in Mandya district. The agricultural surplus that accumulates in the hands of a few have pushed up the demands for urban goods and services like cars, motor cycles, ornaments, watches, household appliances, stainless steel utensils, plastic goods, novelties, fancy goods, liquor, textiles, cosmetics, cinema, health facilities, higher educational facilities *etc.* The amounts spent on social events, feasts and festivals also have gone up. The demonstration effect has influenced the demand pattern of lower income groups as well. The earthen pots have been replaced by plastic and aluminium ones, tractors, cars and motor cycles tend to replace bullock carts and mill clothes and suiting materials replace traditional hand-woven clothing which required very little tailoring. However, the incomes of the large majority are so limited that the amounts that they can afford to spend on these are small indeed. This is reflected in the number of visits to urban areas. Our sample surveys revealed that income is the major determinant which enabled people to make frequent trips to urban centres. The utilisation of the free services (like health services) are also determined largely by income. It was also noticed that the richer ones tend to bypass the local towns for want of choice. Therefore, the demand for the services of local towns have increased only marginally. This could be explained more formally as follows.

The relationship between the household income and demand for goods or services could be described by the income elasticity of demand (IED). An IED exceeding unity implies that the proportion of incomes spent to meet the demand for a particular item increases with increases in income. In other words higher

income groups spent not only more but a greater proportion of their incomes on items with IED more than one. The converse applies for those with IED less than one. If it is less than unity, the proportion of income devoted to meet that demand decreases with increases in income.

Certain types of urban goods and services have income elasticities of demand higher than one and some others (most) have it less than one. Certain inputs to agriculture, marketing services, automobiles and tractor repairs — services, private medical facilities, certain types of textiles and household goods, services of higher educational institutions, *etc.*, may be assumed (in the light of field observation) as items of which demands increase sharply with income, *i.e.* having high income elasticities of demand mostly more than one. There are items such as comparatively cheaper clothes, certain types of household utensils, certain types of groceries and provisions, *etc.* which have low (less than one) or negative income elasticities of demand. It could be shown that the total demand for a good or service in a region depends not only on the average incomes, but also the distribution of income. More and more the disparity in the income distribution, the less and less will be the total demand for goods and services with income elasticities less than one (poor man's goods and services) and more and more will be the total demand for goods and services with income elasticities more than one.²⁰

What it implies is that in a given region (or in the influence area of a town), the increase in productivity and thereby the total rural income may not be accompanied by a proportionately higher demand for certain types of urban goods and services, especially if the growth is accompanied by greater disparity in income distribution.²¹ This is what has happened in the Mandya district. In this situation demands of only certain types of urban goods and services have risen sharply. Most of these goods and services such as cars, motor cycles, costly textiles, higher education facilities, *etc.* are higher threshold functions which require larger minimum demands so as to establish a unit (manufacturing, sale or service). The incomes have not increased so high that demands for most of these could reach the minimum threshold required to establish a sale unit within the catchment area of local towns or even the regional town in some cases. On the other hand, the total demands for lower order goods and services with income elasticities less than one have increased only a little, due to the increased disparity in income distribution. Consequently these lower order COT functions also have not increased greatly in local towns. Whatever growth has occurred in the COT activities in these towns are largely those intended to satisfy the demands of lower income groups (as indicated by Table 11). As shown in Fig. 5, the demand for the services of local towns (area between PP' and AA') largely consisting of those with IED < 1²² has increased only marginally even after an increase in the total income of the region. A large part of the consumption demands of richer groups are met partially by the regional town of Mandya and largely by metropolitan Bangalore and Mysore city. The greater growth of COT functions in Mandya is due to its large size, higher administrative hierarchy, its

²⁰ See Appendix 2.

²¹ With respect to footnote 20, change in demand D_j with respect to change in total income Y ,

$$\frac{\Delta D_j}{\Delta Y} = \frac{dD_j}{dY} = K_j \cdot (q + 1)^{b_j} \cdot Y^{b_j-1} \cdot b_j \quad (6)$$

$$q b_j + 1$$

It can be said that $(q + 1)^{b_j}$ is less than $q b_j + 1$ for all values of b_j less than unity, because $\left(\frac{q + 1}{q b_j + 1}\right)^{b_j}$ has a negative derivative for all values of $b_j < 1$. Therefore marginal increase ΔD_j will be affected negatively by an increase in q . It is possible that an increase of q can reduce or even negate the effect of an increase of Y on D_j , if $b_j < 1$. On the other hand, an increase in q can further the positive effect of an increase of Y on D_j if $b_j > 1$.

²² Our field observations, and Table 11, make us assume that most of the services of local towns and some of that of regional towns have income elasticities of less than 1.

larger influence area for some functions of higher threshold demand and its location in the most prosperous tract.

This would explain, though partly, the stagnation of local towns despite the rapid agricultural growth around. A more equitable distribution of income would have probably left more purchasing power at the hands of the poorer sections and thus would have resulted in more demands for goods and services of the local towns and hence, higher urbanisation as well as more decentralised urban growth.

Why is there no local manufacturing?

Figure 5 gives also a generalised picture of the proportions of incomes that different income percentiles spend on goods bought in or services provided by different types of towns. The areas between PP' and A', AA' and BB', BB' and QQ' show the proportions spent in local towns, regional towns and metropolitan areas. We may ask now, why is there not much local manufacturing activity? Are the demands indicated by these areas in the figure so low as to meet the threshold demands for establishing manufacturing units? This may be true of many goods, given the present technology of production. But this cannot be true for all or most cases. There is another reason.

The sales network of the modern sector in India is quite large and its expansion is quite aggressive. The expanding trade networks from metropolitan centres have long ago established links in Mandya district. There may be many reasons for consumer preferences, but it is true that even items of common use such as cycle spares, plastic goods, all kinds of textiles, washing soaps, detergents, bangles, cosmetics, household utensils, many construction materials, household fixtures, agricultural implements *etc.* now move into the shops of the local towns from Bangalore or Mysore (see Table 9). Most of these are manufactured by large industrial houses in Bangalore or elsewhere and get to the local towns through trade channels. This prevents the local manufacturing activity from satisfying local demands. Even those demands which once used to be satisfied by local artisan production are now met by imports [examples, earthen pots, handloom fabric, locally made cigars (*beedis*)]. The domestic mode of production is being eased out. Modern products have arrived; but not the modern industry. The possibility of agricultural surplus generating some industrial activities in local and regional towns is thus pre-empted by aggressive trade channels. What appears to have occurred is the moving in of the metropolitan interests into the area to cream off as much of the rural surplus as is possible. This leaves the regional towns mainly to function as distribution and service centres rather than as centres of non-farm production. Ironically, manufacturing activities that are pushed to local towns as part of the development strategy are also not meant for local markets (for instance, the scooter factory located in Maddur recently). A problem associated with this kind of industrialisation strategy is its impossibility to replicate everywhere.²³

*The surplus and urban investment*²⁴

Agricultural surplus accumulating in a few hands finds limited investment opportunities in the rural areas now. Epstien (1971, p. 26) noted that the 'path of development' in Wangala (in Mandya):

²³ It can also be argued that these industrial establishments which have no organic link with regional economy or the local skills, pushed to a local town with a large investment from the state or private capital can do more harm than good to the area around. Nonetheless, this aspect is beyond the scope of this paper.

²⁴ The term 'surplus' is used not in the Marxian economic sense but to denote the portion of the income over and above the production and consumption requirements of the agricultural sector.

“... started with a short ‘Transition Period,’ then passed through an intensive ‘Agricultural Investment Period’, after which enterprising villagers began to experiment with processing of cane and running stores, i.e. this began the ‘Tertiary Investment Trial Period’ from which they have not yet fully emerged. However there are signs that they will soon enter the full ‘Tertiary Investment Period’ which in Wangala’s case may be coupled with a growing labour migration in search of work.”

Though Epstien was reporting about one village, this appears to be true for the whole of irrigated Mandya district. Agriculture has reached a limit for any further investment. The tertiary investment also has great limitation in local towns as we have noted. Investment in local manufacturing industries is marked by competition from established industries outside. Local entrepreneurship also is limited. A consequence of this is that a large proportion of the investable incomes goes out of the region. During the year 1979, the commercial banks in Mandya district received Rs.150.55 million as deposits from customers and lent out only Rs.123.62 million as credits. This is only one of the indicators of the flight of capital. There are many. Real estate investment in Mysore, Bangalore and Mandya is one of the channels of investment. The number of absentee farmers staying in these places and farming in Mandya also seems to be increasing.

Apart from these, tertiary investment is the major line of possible investments within the Mandya district. There are two types of entrepreneurs who enter this field. One set constitutes those enterprising rich ones entering into commercial ventures in Mysore, Bangalore and Mandya. The other ones are those small farmers who want to get out of agriculture, but do not have enough financial capital to invest. Some of the small farmer informants whom we interviewed at the three sugar factories were looking towards the local towns to start some petty business. Most of these petty businesses such as bunk shops selling *beedi*, cigarettes *etc.* start with very low capital and are often single-man enterprises requiring very little entrepreneurial skill. The ease of entry is one attraction in petty business in local towns for the rural farmer who wants to try a fortune in a different line for himself or for his son. The opportunities such enterprises offer are, however, limited and being a supportive service the employment multipliers of these activities are also very low. Nonetheless, the local towns seem to be holding a key for rural economic diversification if these investments are properly organised and supported.

CONCLUSIONS

What we have seen is that agricultural growth is not a sufficient condition for decentralised urban growth. Further, when such growth occurs in a society with an initially inequalitarian distribution of assets and opportunities, the inter-personal disparities increase and the resulting skewed distribution of income is not very conducive for decentralised urban growth depending largely on tertiary activities. The metropolitan interests, the integration of the rural consumer markets with the metropolitan centres and the aggressive trading networks of modern industries also prevent decentralised growth. As a consequence, local towns stagnate and remain as administrative and service centres with consumption-oriented tertiary (COT) activities.

Although certain types of crops do not lend themselves to agro-industrial developments, towns could act as ‘growth centres’ in certain conditions and crop–activity combinations as the study indicates. One of the conditions of a town to develop a lead role seems to be a rather large scale (may be external)

investment on certain activities which has close links with the rural economy around. An example of this is the rather heavy initial public investment in the agricultural and business complex in Mandya and the policies designed to forge a close link between the elements of this complex with the rural economy. We have also indicated that the pattern of urban growth and the functions the urban centres develop are conditioned by the social and economic structures, and processes. However, it would be greatly incorrect to say that the towns by their very nature cannot play any positive role in the development process.

What about improving the growth, as well as functional status of the local towns? One of the needs of decentralising urban growth is to divert investments in lower order (local) towns. To take the population pressure from agriculture in places like Mandya, these investments have to be essentially in industries and non-farm activities. In the light of the problems faced by local towns to attract investments (large public investments cannot be a universal solution) the only solution for a healthy self-sustaining growth seems to be to push up the line AA' in Fig. 5 substantially, which will increase the demand for the goods and services of local towns. This is possible only by increasing the incomes of poorer classes substantially, by some political or economic means or to restrict the richer ones bypassing the local towns. Both these are not feasible in the short term. Another possibility may be to form a complex of several urban centres wherein the market/service areas of local towns are pooled so that each urban area could specialise in manufacturing some items for the entire region. It should be made possible for local units to compete successfully with the large networks of metropolis based industrial units and to capture most of the local demands for at least certain types of goods by protecting the markets of this urban complex from trade aggression from outside, by appropriate policies. Pushing industries with the right technologies to bring down the threshold demand is another often recommended strategy, but these industries often get strangled due to competitions from large ones.

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APPENDIX 1

Functions and role of towns in Mandya district

A. Production and service functions ¹	The 'medium sized' regional town. Mandya (district headquarters) ²	Other local towns (<i>taluk</i> headquarters) ³
1. Administration	District Revenue offices, District Courts, Supdt. of Police, <i>etc.</i>	<i>Taluk</i> offices and Magistrate Courts. Police station <i>etc.</i>
2. Development administration	District Agricultural offices, veterinary hospital. Dist. offices of Education, Industries and Commerce and Public Works Department.	Veterinary hospital, Agricultural Extension Block offices, <i>Taluk</i> Dev. Board.
3. Industry	Large sugar factory and other ancillary industries.	Nothing significant except a sugar mill in one of them and small rice mills and saw mills and other service industries. A scooter factory in the public sector was started recently in one of the towns.
4. Social services (Education, Health, <i>etc.</i>)	District hospital, a few specialists, private doctors, and general physicians, drug stores. Under-graduate colleges, Engineering College, Technical training institute, other vocational training institutes such as typewriting and shorthand <i>etc.</i> Utilisation of these services greatly influenced by income and social class of the users in the rural areas.	<i>Taluk</i> hospitals of 10–15 beds, About 6–10 private doctors (general practitioners). One undergraduate college in some cases enrolling students from 10–15 km. High schools serving mainly the local students and some students from villages around. Typewriting and shorthand training institutes.

5. Marketing, shopping and recreation	<p>Larger retail shops, departmental stores, daily vegetable and meat market mostly serving the local population.</p> <p>Wholesale business in grain and fertilisers, Regulated markets for paddy and other grains.</p> <p>Shops selling impulse goods such as crockery, radios, electrical goods, sewing machines, novelty, jewellery shops, engineering equipment and construction materials (clientele includes upper and upper-middle class). Petrol bunks, toddy and other liquor shops, theatres, restaurants and bars.</p>	<p>Weekly markets in some places, shops of provisions, textiles <i>etc.</i> serving local population and occasionally the villages around, fertiliser depots, toddy and other liquor shops, petrol bunk in two places, theatres, tea shops.</p>
6. Financial services	<p>Commercial banks, District Co-operative Societies, Insurance.</p>	<p>Commercial banks, pawn brokers, Agricultural credit societies. Often some of these institutions function to cream off the surplus income generated in the rural areas. Credits exceed loans.</p>
7. Transport	<p>Regional node with some transportation operators (trucks, buses <i>etc.</i>), railway station and express bus stop for connections to other big cities.</p>	<p>Nodal point for public transport connections to Mandya, Mysore and Bangalore. Taxis are available for hire.</p>

B. Functions as development foci:

1. Employment opportunities	<p>Industrial employment in the sugar factory accounts for about 15% of workers; the district administration for another 10–15%. Both these have limited expansion possibilities and the employees in these two sectors come not only from the district.</p> <p>Possibilities of employment, self employment in consumption-oriented commercial and tertiary sectors only.</p>	<p>Very meagre opportunities of employment in secondary sector and tertiary sectors. Limited expansion possibilities without large scale govt. intervention. Local skills however do not always match with such opportunities when created.</p>
2. Impact of towns services on rural production and activities	<p>Sugar mill has helped to increase area under cultivation. Benefits mainly going to the large cultivators and the impact is limited to a small tract around the factory. Proliferation of small crushers making <i>jaggary</i> all over the sugar-cane growing tract is a secondary impact. But they face stiff competition from factories.</p>	<p>Not much except around the sugar mill at Pandavapura where it is the same case as in Mandya, impact limited to small tract.</p>
3. Investment opportunities	<p>Investment opportunities in the tertiary sector. Part of the surplus agricultural income gets invested here in urban real estate and commercial activities.</p>	<p>Very meagre opportunities as demand for the urban goods are limited because of the large percentage of poorer people in the area around. Opportunities are only in small scale petty business.</p>

Source: ¹ Municipal office records.

² Primary Survey of Units in two case study towns, Malavalli and Maddur.

³ Observations and discussions with local persons and officials.

APPENDIX 2

This can be seen by defining income distribution as:

$$Y_i = Y.P. (i)^q \quad (1)$$

and demand function as

$$D_i^j = A_j Y_i^{b_j} \quad (2)$$

where Y_i = the total incomes of all the households in i th percentile group, $i = 1, 2, \dots, 100$.

Average income of a household will be — $\frac{Y_i}{n}$

where n = total number of households in the i th percentile group.

Y = total income earned by all the households in the region.

P and q are empirically found constants. $q \geq 0$ when $q = 0$, the distribution is egalitarian. When it increases the disparity in distribution increases.

D_i^j = Demand for a good or service 'j' among the i th percentile group.

b_j = is the income elasticity of demand for 'j'.

A_j is an empirically found constant.

By definition,

$$Y = \sum_{i=1}^{100} Y_i = \sum_{i=1}^{100} Y.P. (i)^q$$

if Y is assumed constant,

$$Y = \int_0^{100} Y.P. (i)^q di = \frac{Y.P. (100)^{q+1}}{q+1}$$

$$P (100)^{q+1} = q + 1. \quad (3)$$

Total demand for a good or service 'j' in the region,

$$\begin{aligned} D_j &= \sum_{i=1}^{100} D_i^j = \sum_{i=1}^{100} A_j Y_i^{b_j} = \sum_{i=1}^{100} A_j [Y.P. (i)^q]^{b_j} \\ &= \int_0^{100} A_j Y^{b_j} P^{b_j} (i)^{qb_j} di = \frac{A_j Y^{b_j} P^{b_j} 100^{(qb_j+1)}}{(qb_j+1)} \\ &= \frac{A_j Y^{b_j} P^{b_j} 100^{(q+1)b_j}}{100^{b_j-1} (qb_j+1)} = \frac{A_j Y^{b_j} [P.100^{(q+1)}]^{b_j}}{100^{b_j-1} (qb_j+1)}. \end{aligned}$$

Substituting (3),

$$D_j = \frac{A_j Y^{b_j} (q+1)^{b_j}}{100^{b_j-1} (qb_j+1)} = k_j \frac{(q+1)^{b_j}}{qb_j+1} Y^{b_j} \quad (4)$$

$$\text{where } K_j = \frac{A_j}{100^{b_j-1}}.$$

This means that the proportion of the total incomes of all households in a region spent on a good (j) depends on q as well as b_j .

The derivative $\frac{dD_j}{dq} = K_j Y^{b_j} \cdot \frac{(q+1)^{b_j}}{qb_j+1} \cdot \frac{d}{dq}$

$$\begin{aligned} &= k_j Y^{b_j} \times \left[\frac{(qb_j+1)}{(qb_j+1)^2} \cdot \frac{(q+1)^{b_j-1} \cdot b_j - (q+1)^{b_j} \cdot b_j}{(qb_j+1)^2} \right] \\ &= K_j Y^{b_j} \cdot \frac{(q+1)^{b_j-1} \cdot b_j [(qb_j+1) - (q+1)]}{(qb_j+1)^2} \end{aligned}$$

$$= \frac{K_j Y^{b_j} (q+1)^{b_j-1} \cdot q b_j (b_j - 1)}{(q b_j + 1)^2} \quad (5)$$

This quantity will be negative if $b_j = <1$ and positive if $b_j = >1$. The slope of demand function with respect to changes in 'q' will be negative if $b_j <1$ and positive if it is >1 . This means that if disparity in income distribution is more, the demand for all goods with income elasticity <1 will decrease and that for those with income elasticities >1 it will increase, if Y remains constant. Because $(b_j - 1)$ will be negative if $b_j <1$.

Equation (1) may not be an accurate fit for income distribution in all cases especially towards the extremes of (i). However, this curve was chosen for its versatility in adopting different shapes including that of a straight line. A curve of $Y_i = Y \cdot Fe^{q(i)}$ also will behave in a similar way as detailed.

$$D_j = \frac{A_j Y^{b_j} q^{b_j-1}}{b_j}$$

$$\frac{dD_j}{dq} = \frac{A_j Y^{b_j} q^{b_j-2}}{b_j} \times (b_j-1) \text{ and}$$

$$\frac{dD_j}{dY} = A_j Y^{b_j-1} q^{b_j-1}.$$